

•
•
•
•
•
**FY05 Oso Creek/Oso Bay
Proposed Project**

Bacteria Sampling Plan



**Joanna Mott, Ph.D.
Physical and Life Sciences
Texas A&M University-Corpus Christi**



Sampling Stations

- Ambient
 - Historical
 - Representative of bay/creek system
- Source Assessment (after rainfall)
 - Sanitary survey to identify potential sources

•
•
•

Ambient

- TNRCC (TCEQ) Region 14
- NRA quarterly sampling:
 - 13028 Oso Creek South of Corpus Christi (SH 286)
 - 13440 Oso Bay at Padre Island Drive (SH 358)
 - 13029 Oso Creek SW of Corpus Christi (FM 763) NEW (Fall '04)

•
•
•

- Other Historical
 - 13442 Oso Bay at (Ocean Drive) CC Bay
 - 13026 Oso Creek at Yorktown Bridge
 - 13027 Oso Creek at FM 2444 S of Corpus Christi
 - 16712 Oso Creek at W of SH 286 (Elliott Landfill)
 - 13441* Oso Bay at Hans Suter

-
-
-

- **Proposed upstream stations**
 - W. Oso Creek at FM 665
 - Oso Creek at FM 665
 - Oso Creek at SH 44

Ambient Stations



•

•

•

Source Assessment

- Urban storm water run-off
- Waste water treatment plants
- Rural communities
 - Septic systems
 - Colonias
- Animal (Livestock) – other sources
 - e.g. pet waste, bird
- Agriculture

Potential Sources



•
•
•

Source Assessment

- Downstream from WWTPs
 - Oso Bay adjacent to Oso STP discharge
 - Robstown at SH 77 (WWTP ditch)
- Landfill runoff
- Rural community
 - Rose Acres ditch
 - London community (animal)

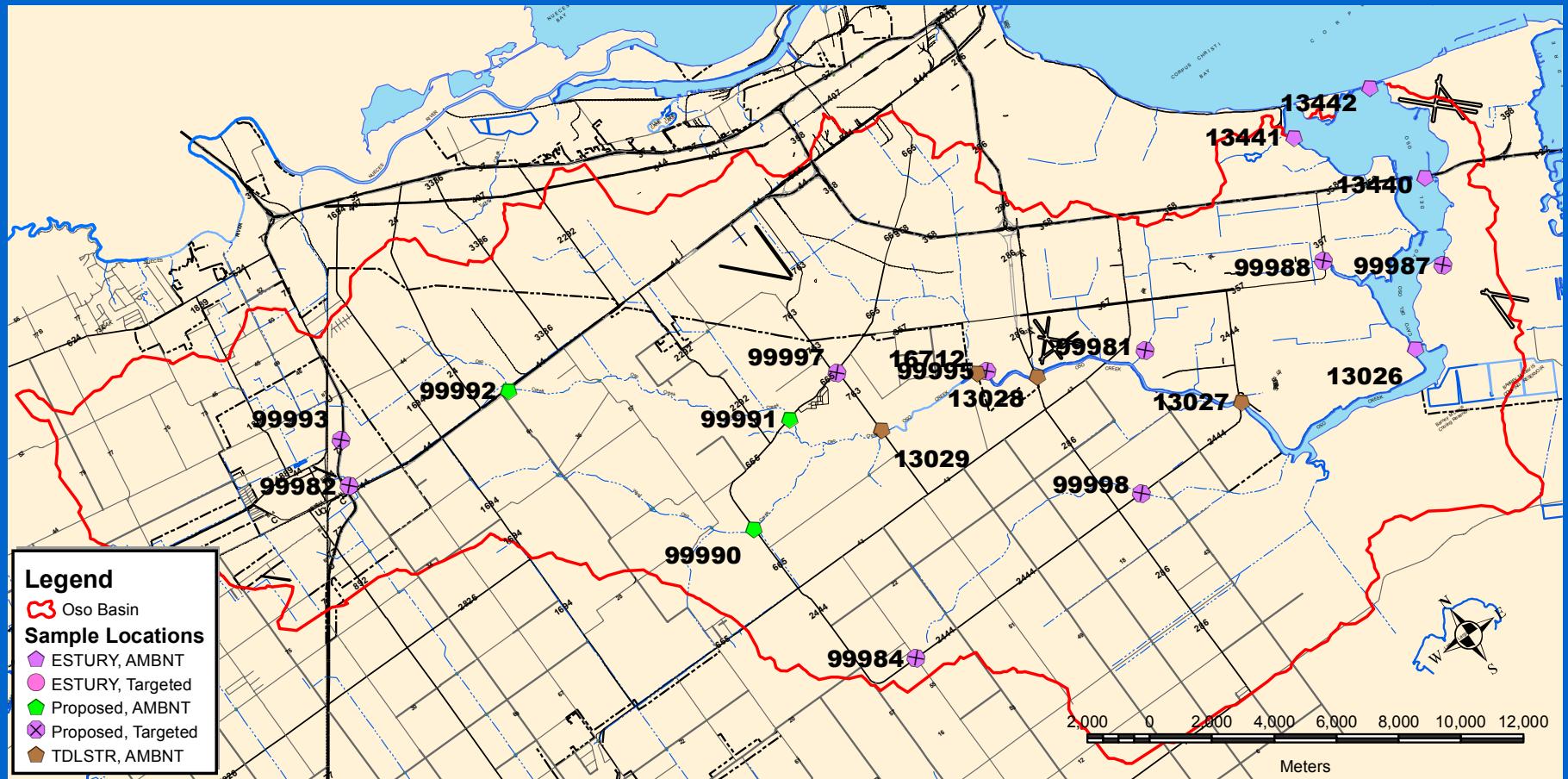
-
-
-

- **Livestock**
 - Glen Oak ditch (Flour Bluff)
- **Urban runoff**
 - Cedar Pass ditch
 - Rodd Field ditch
 - CR 40 near US 77 ditch
- **Agriculture**
 - CR 53 near 2444

Targeted Locations



All Sampling Locations





Sampling Frequency

- Ambient:
 - Two times per month for 6 months
 - After 3 rainfall events – 4-5 times (approx. 24 hr intervals)
- Targeted:
 - After 3 rainfall events – 3 times (approx. 24 hr intervals)

•
•
•

Sampling Parameters

- Water for bacteria analysis – enterococci (two samples per station)
- Field observations
 - visual appearance of the water
 - water use
 - weather
 - flow severity
 - days since last precipitation event - NWS data.

- -
 -
-
- **Field physicochemical parameters:**
(SWQM Proc., Vol 1 (RG-415, Dec. 2003)
 - **By Multiprobe Instrument:**
 - dissolved oxygen (PC 00300)
 - water temperature (PC 00010)
 - specific conductance (PC 00094)
 - pH (PC 00400)
 - salinity (PC 00480)
 - **Secchi disk transparency (PC 00078)**

-
-
-

- Instantaneous flow measurement (PC 00061) by flow gauge station/ electronic/ mechanical measuring device (not at tidal stations).

OR:

- Flow estimates if field conditions do not allow for flow measurement (PC 74069).

•
•
•

Bacteria Analysis

- **Enterococci**
 - Residents of animal/human intestinal tracts
 - Indicator of fecal contamination
 - Recommended by EPA (1986) for marine waters and as an alternative to *E. coli* for freshwaters
 - Standards for recreational waters, based on counts



Bacteria Analysis

- EPA Method 1600 Enterococci
 - Standard method
 - Membrane filtration
 - 24 hr incubation
 - Colony counts submitted to TCEQ
 - Data incorporated into loadings model